

The aurora of the 12th was most distinct at Duluth and Pembina, Dakota, Eastport, Me., and Cornish, Standish and Mt. Desert, Me., and Fall River, Mass.

At Hillsboro', Ohio, an aurora was seen on the 31st.

OPTICAL PHENOMENA.

(1.) *Solar halos* were observed at Milford, Del., on the 16th; at Atlanta, Ga., on the 9th and 21st; at Gainesville, Ga., on the 16th; at Hennepin, Ill., on the 1st and 4th; at Cresco, Iowa, on the 4th and 27th; at Cornish, Me., on the 6th, 17th and 25th; at Florida, Mass., on the 18th; at Litchfield, Mich., on the 9th; at Trenton, N. J., on the 14th; at Waterbury, N. Y., on the 1st, 10th and 24th; at Weldon, N. C., on the 13th; at Belmont Farm, Texas, on the 1st, and at Lewisville, Va., on the 6th and 25th.

(2.) *Lunar halos* have been more numerous than solar, and have prevailed in the latter part of the month. The two phenomena have occurred over nearly the same stations. These halos were observed at Southington, Conn., on the 22d; at Milford, Del., on the 25th; at Gainesville, Ga., on the 8th; at Vevay, Ind., on the 14th and 28th; at Rockford, Iowa, on the 19th; at Cresco, Iowa, on the 23d; at Pine Grove, Ky., on the 21st; at Cornish, Me., on the 22d; at West Waterville, Me., on the 24th; at Standish, Me., on the 23d; at Northampton, Mass., on the 24th; at Andover, Mass., same date; at North Adams, Mass., on the 24th; at Northport, Mich., on the 25th; at Brookhaven, Miss., on the 22d; at Fayette, Miss., on the 25th; at Atco, N. J., on the 20th; at Depauville, N. Y., on the 24th, and at Weldon, N. C., on the 22d.

CAUTIONARY SIGNALS.

The total number of Cautionary Signals ordered for and displayed at ports of the United States during the month of October was eighty-six, (86.) The regulation requires a display of the storm-warning signals at a station whenever the officer, preparing the predictions, judges that at the station, or within a radius of one hundred miles, the wind will reach twenty-five miles an hour, or attain a velocity dangerous to shipping. According to this regulation, the whole number of ordered Cautionary Signals, which are justified by the result, was, for the entire month, sixty-five. This makes the percentage of justifications seventy-five.

MISCELLANEOUS PHENOMENA.

The most striking of these is the extensive and disastrous prevalence of prairie and forest fires, chiefly in Indiana, Ohio and the surrounding districts, during the whole month of October. These are due to artificial causes, combined with the extreme dryness of the interior. The wide ravages of these forest-fires are indicated by the numerous reports of dense smoke, forwarded in the Signal Service returns. These indications came from Breckenridge and St. Paul, Minn.; Toledo, Ohio; Bismarck and Pembina, Dakota, on the 2d and 18th respectively; Omaha, Neb.; La Crosse, Wis.; Long Branch, N. J.; Augusta, Ill.; Cumberland, Woodstock and Falston, Md.; Andover, Mass.; Wet Glaze, Mo.; Plattsmouth, Neb.; Atco, N. J.

(2.) *Migration of birds.*—The migration of wild geese, southward, was first noticed at St. Paul, Minn., on the evening of the 27th, shortly before Storm No. IX and the approach of the area of high pressure and low temperature. At Fort Randall, Dakota, on

the 2d, geese were seen going south; at Rockford and Afton, Iowa, on the 12th; at Fort Madison, Iowa, on the 26th; at Arkansas City, Kansas, on the 12th and 18th; at Andover, Mass, on the 26th, the same phenomenon was registered. At Mt. Desert, Maine, on the 21st, crows were seen going south, and geese, at Sugar Island, Mich., on the 31st, and at San Diego, California, on the 27th and 28th.

(3.) *Meteors.*—On the 20th, occurred at St. Paul, Minn., the striking phenomenon of a meteoric ball of fire exploding with an intense white light, the fragments scattering in all directions as they fell towards the earth. Light meteors were also seen at Linden, Ill., on the 16th, 25th and 28th; near Burlington, Ind., on the 24th; at Woodstock, Md., on the 9th, 14th, 15th, 17th and 20th; at Fayette, Miss., on the 26th; at Corning, Mo., on the 14th, and at New York city on the 17th.

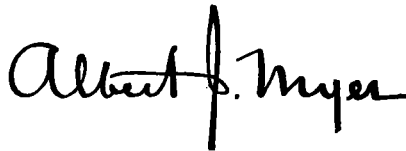
(4.) *First frosts, snows and ice.*—The first destructive frost occurred at Memphis on the 13th, doing considerable injury to the top crop of unmaturing cotton balls. The first frost at Pittsburgh was on the 15th; at Wytheville, Va., on the 13th; at Leavenworth, on the 11th; at Rochester, N. Y., on the 15th; at Fort Randall, D. T., on the 7th; Fort Wayne, Mich., on the 4th; at Plattsburg, N. Y., on the 19th; at Moulton and Marion, Ala., on the 13th.

The first snows fell at Rochester, on the 13th; at Port Huron, Michigan, Cleveland, Ohio, and Germantown, Penn., on the 31st; at Fort Niagara and Fort Porter, N. Y., on the 31st; at Fort Ontario, N. Y., on the 13th; at Plattsburg Barracks, N. Y., on the 31st; Jackson county, N. C., on the 13th; at Fort Fred. Steele, Wy. T., on the 28th, and at Golden City, Col., on the 29th.

The first ice formed at Toledo on the 13th; on the 31st at Mt. Sterling, Ill.; at Fort Randall, D. T., on the 31st; on the 13th at Laconia, Ind.; on the 12th at Afton, Iowa.

At Boston, on the 2d, a beautiful mirage was observed in the eastern horizon, about 6 p. m., lasting several minutes. The distinct image of a ship at sea was depicted, the eastern sky assuming a dull, hazy and orange tint. There was a "norther" upon the Texas coast on the 29th. Heavy snow fell in Dakota Territory, which obstructed the railroad trains, about the close of the month. Observations on Lake Superior show that the oscillations of the barometer and those of the lake-water were contrary twenty-nine times and acted together sixty-four times. A water-spout took place on Lake Erie, October 31st, which had an apparent rotary motion and reached the shore about half a mile west of Buffalo, when it burst, scattering the sand in all directions.

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